

What is claimed is:

1. A retroreflective article comprising:
  - (a) a layer of optical elements comprising:
    - 5 (i) a first set of exposed-lens optical elements having an embedded portion and a first reflective layer disposed on the embedded portion; and
    - (ii) a second set of exposed-lens optical elements having an embedded portion;
  - 10 (b) a light-transmissible spacing layer having first and second surfaces, the first surface disposed adjacent to the embedded portions of the first set and second set of optical elements; and
  - (c) a second reflective layer disposed on the second surface of the spacing layer.
- 15 2. The article of claim 1, wherein the first and second set of optical elements have <sup>a</sup>similar average properties selected from the group consisting of average diameter, refractive index, specific gravity, and combinations thereof.
- 20 3. The article of claim 2, wherein the refractive index of the first and second sets of optical elements are in the range of about 1.86 to about 2.0.
4. The article of claim 1, wherein the first set of optical elements has a refractive index in the range of about 1.86 to 2.0 and the second set of optical elements  
25 has a refractive index of about 1.90 to 2.1.
5. The article of claim 1 wherein the spacing layer cups around the first and second set of optical elements.
- 30 6. The article of claim 1, wherein the spacing layer has a refractive index in the range of about 1.4 to 1.7.

7. The article of claim 1, wherein the first and second set of optical elements are ceramic.

8. The article of claim 1, wherein the first set of optical elements  
5 contributes substantially to retroreflection under dry conditions and the second set of optical elements contributes substantially to retroreflection under wet conditions.

9. The article of claim 1, wherein the optical elements from the first set are evenly distributed with the optical elements from the second set.

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10. The article of claim 1, wherein the first and second reflective layers are metal layers selected from the group consisting of aluminum and silver.

11. The article of claim 1, wherein the second reflective layer is selected  
15 from the group consisting of diffuse reflector and specular reflector.

12. The article of claim 1, wherein a light transmissible colorant resides in at least one layer selected from the group consisting of the first set of optical elements, the second set of optical elements, and the spacing layer.

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13. The article of claim 1, wherein the spacing layer has a uniform and finite thickness at the most embedded portion of the optical elements.

14. The article of claim 1, wherein the spacing layer comprises material  
25 selected from the group consisting of polyvinyl butyral, polyurethane, polyester, acrylic, acid olefin copolymers, polyvinyl chloride and its copolymers, epoxy, polycarbonate, and mixtures thereof.

15. A pavement marking comprising:  
30 (a) a binder layer;  
(b) a plurality of non-integral projections disposed on the binder layer; and  
(c) the retroreflective article of claim 1 disposed on the projections.

16. The pavement marking of claim 15 further comprising a base sheet beneath the binder layer.

5 17. The pavement marking of claim 15, wherein the binder layer further comprises pigments and exposed-lens optical elements partially embedded in the pigmented binder.

18. A retroreflective element comprising:  
10 (a) a core layer;  
(b) the retroreflective article of claim 1 disposed on the core such that the core lies adjacent to the second reflective layer.

19. A pavement marking comprising:  
15 (a) a binder layer; and  
(b) the retroreflective element of claim 18 disposed on the binder layer.

20. The article of claim 1, wherein the optical elements are applied selectively so as to produce graphics or indicia.

20 21. The article of claim 1, wherein the article retroreflects a first color under dry conditions and a second color under wet conditions.

22. A method of making a pavement marking comprising the steps of:  
25 (a) providing a first set of optical elements having a first reflective layer that covers substantially the entire surface of the elements;  
(b) providing a second set of optical elements;  
(c) providing a light-transmissible spacing layer having a first and a second surface;  
30 (d) applying the first and the second sets of optical elements to the first surface of the spacing layer;

(e) partially embedding the first and second sets of optical elements into the spacing layer such that the optical elements have exposed portion and an embedded portion;

(f) removing the first reflective layer from the exposed portion of the first  
5 set of optical elements; and

(g) applying a second reflective layer to the second surface of the spacing layer.